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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/580,874	05/30/2000	Michel Ladang	192592USONPP-CONT	1709

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EXAMINER

GOFF II, JOHN L

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 07/30/2002

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/580,874

Applicant(s)

LADANG ET AL.

Examiner

John L. Goff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-17 is/are pending in the application.
- 4a) Of the above claim(s) 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to Amendment A filed on 6/3/02. All previous objections to the specification have been overcome. The previous rejections under 35 U.S.C 112 have been overcome. The 35 U.S.C. 102 and 103(a) rejections using Hooper et al. are withdrawn in favor of Hosoda et al. It is noted Hosoda et al. expressly teaches adhering supports to one or both faces of a polyolefin foam sheet to effect unidirectional expansion of the sheet only in its thickness.

Election/Restrictions

2. Applicant's election of claims 10-16 (formerly claims 1-8) in Paper No. 11 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Objections

3. Claims 11 and 12 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 11 is an exact duplication of process a) in claim 10. Claim 12 is an exact duplication of process b) in claim 10. Neither claim 11 nor claim 12 further limit claim 10.

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4. Claim 15 is objected to because of the following informalities: In claim 15, line 3 delete "g/cm²" and insert therein - - g/cm³ - -. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 10, 12, 13, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Hitchcock (U.S. Patent 5,087,395).

Hitchcock is directed to the continuous expansion of a sheet of polyolefin foam. Hitchcock teaches a mixture of a thermoplastic resin (preferably polyethylene or an ethylene copolymer), a heat-decomposable blowing agent, and a cross-linking agent extruded into a desired shape such as a sheet (Column 4, lines 15-20 and 39-41). The surface of the sheet is further cross-linked offline by a suitable radiation source up to ¼ of an inch with the crosslinking occurring perpendicular to the direction of expansion of the foam (Column 1, lines 23-27 and Column 2, lines 59-63). The surface cross-linked sheet is fed to a preheating chamber and is raised to a temperature such that the sheet begins to foam and cross-link (due to the crosslinking agent) when passed into the foaming chamber (Column 2, lines 55-59 and Column 3, lines 42-47). The sheet undergoes unidirectional expansion in its thickness while in the foaming chamber to form a foamed sheet (Figure 1 and Column 3, lines 42-47). A set of pull rollers advance the sheet through the heating and foaming chambers (Figure 1). The pull rollers advance the sheet at a rate of speed roughly equivalent to the forward rate of the sheet in order to maintain an even pull (tension) across the face of the sheet (Column 4, lines 5-10). The mixture of resin, blowing

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agent, and crosslinking agent is essentially ethylene copolymer or at least 20% by weight polyethylene (Column 5, lines 30-35 and Column 6, lines 22-27).

7. Claims 10, 11, 13, and 15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hosoda et al. (U.S. Patent 3,608,006).

Hosoda et al. are directed to a process for manufacturing a cross-linked polyolefin foam sheet expanded only in its thickness by adhering supports to one or both sheet faces prior to expansion. Hosoda et al. teach a mixture of polyethylene, blowing agent, and cross-linking agent moulded into the form of a sheet (Figure 1 and Column 1, lines 9-12 and Column 5, lines 10-16). A cloth or paper support is adhered to the sheet perpendicular to the direction of expansion (Figure 1 and Column 1, lines 13-14 and Column 5, lines 16-18). A conveyor carries the sheet into an oven where heat is applied to cross-link and expand the sheet (Figure 1 and Column 4, lines 7-8 and Column 5, lines 19-22). The sheet expands only in its thickness owing to its adhesion with the support (Column 2, lines 7-10). The moulded mixture is at least 20% by weight polyethylene (Column 5, lines 10-14).

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoda et al. in view of Hitchcock.

As noted above, Hitchcock teaches expanding the foam under tension with no stretching. However, applicant argues the tensioning taught by Hitchcock would result in lateral expansion (stretching) of the foam. In any event it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the support taught by Hosoda et al. to use the surface cross-linked support as suggested by Hitchcock.

Hosoda et al. teach all of the limitations in claim 12 except for a teaching on surface cross-linking one or both faces of the foam product prior to expansion. As noted above, Hosoda et al. teach the unidirectional expansion of a polyolefin sheet in its thickness wherein a support is adhered to the surface of the sheet prior to expansion. The support is adhered perpendicular to the direction of expansion. The method taught by Hosoda et al. is useful for forming foamed insulation panels or the like. However, it is also known in the art to form polyolefin foam sheets with surface cross-linked foams for use in the health care industry as shown for example by Hitchcock (Column 1, lines 27-31 of Hitchcock). One of ordinary skill in the art at the time the invention was made reading Hosoda et al. in view of Hitchcock would have readily appreciated surface crosslinking the foam product to form a support perpendicular to the direction of expansion rather adhering a support to the foam product as a means to ensure unidirectional

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expansion of the foam when a soft, surface cross-linked facing is required as part of the final product.

Hitchcock is directed to the continuous expansion of a sheet of polyolefin foam.

Hitchcock teaches a mixture of a thermoplastic resin (preferably polyethylene or an ethylene copolymer), a heat-decomposable blowing agent, and a cross-linking agent extruded into a desired shape such as a sheet (Column 4, lines 15-20 and 39-41). The surface of the sheet is further cross-linked offline by a suitable radiation source up to $\frac{1}{4}$ of an inch with the crosslinking occurring perpendicular to the direction of expansion of the foam (Column 1, lines 23-27 and Column 2, lines 59-63). The surface cross-linked sheet is fed to a preheating chamber and is raised to a temperature such that the sheet begins to foam and cross-link (due to the crosslinking agent) when passed into the foaming chamber (Column 2, lines 55-59 and Column 3, lines 42-47). The sheet undergoes unidirectional expansion in its thickness while in the foaming chamber to form a foamed sheet (Figure 1 and Column 3, lines 42-47). A set of pull rollers advance the sheet through the heating and foaming chambers (Figure 1). The pull rollers advance the sheet at a rate of speed roughly equivalent to the forward rate of the sheet in order to maintain an even pull (tension) across the face of the sheet (Column 4, lines 5-10).

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoda et al. as applied in paragraph 7 above and further in view of Bertsch (U.S. Patent 4,180,427).

Hosoda et al. as applied above teach all of the limitations in claim 14 except for a teaching on a corona discharge operation prior to adhering the support to the foam product. Bertsch is directed to applying a sheet of covering material to a sheet of thermoplastic foam material prior to expansion. Bertsch teaches a corona discharge directed against the surface of

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the foam product before applying the covering material to enhance adhesion between the foam and covering by burning away any impurities (Column 1, lines 55-61 and Column 2, lines 15-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to surface treat the foam product with a corona discharge operation as taught by Bertsch to ensure all impurities are removed before applying the facing material as shown in Hosoda et al.

12. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hitchcock as applied in paragraph 6 above and also over Hosoda et al. as applied in paragraph 7 above, and further in view of Hurley et al. (U.S. Patent 5,883,145).

Hitchcock and Hosoda et al. as applied above teach all of the limitations in claim 16 except for a teaching on forming the polyethylene or ethylene copolymer by metallocene catalysis with a density of at most 0.92 g/cm^3 . Hurley et al. are directed to manufacturing cross-linked polyolefin foam. Hurley et al. teach that it was known in the art to form polyolefin foams of very low density polyethylene (VLDPE) (density of 0.88 to 0.92 g/cm^3) when a flexible foam is desired (Column 1, lines 52-58). However, these known foams tend to be of low quality due to melt fracture (Column 1, lines 61-64). The melt fracture occurring due to forming the VLDPE with a low molecular weight (Column 1, lines 58-61). Hurley et al. teach using metallocene catalysts as a means to form VLDPE of a controlled molecular weight ensuring the molecular weight of the VLDPE is high enough to preclude melt-fracture (Column 2, lines 16-22 and 52-58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the polyethylene taught by Hitchcock or Hosoda et al. using a metallocene catalyst as suggested by Hurley et al. to form a high quality flexible polyethylene (density of 0.88 to 0.92 g/cm^3) that is not subject to melt fracture.

Response to Arguments

13. Applicant's arguments filed 6/3/02 have been fully considered but they are not persuasive.

Applicant argues that Hitchcock does not teach unidirectional expansion because Hitchcock teaches applying a uniform tension across the sheet. Applicant argues this tension results in a lateral expansion of the foam product. It is noted Hitchcock teaches nip rollers to apply tension to the leading edge of sheet to prevent wrinkling of the sheet, and thus, maintain a uniform orientation across the sheet (Column 4, lines 5-7). The sheet enters the nip rollers after expansion (Figure 1). Hitchcock further teaches that the nip rollers advance the sheet at a rate of speed roughly equivalent to the forward rate of the sheet (Column 4, lines 7-10). Thus, the tension provided by the nip rollers only maintains the unidirectional expansion that occurred in the foaming chamber and does not stretch the sheet to affect any lateral expansion.

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Conclusion

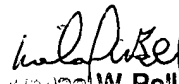
14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **703-305-7481**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



John L. Goff
July 29, 2002


Michael W. Ball
Senior Patent Examiner
Technology Center 1700